

10. Natural Resources and Environment

■ Forest Service

Mission

The Forest Service mission is “to sustain the health, productivity, and diversity of the land to meet the needs of present and future generations.” “Caring for the Land and Serving People” expresses the spirit of the mission. The mission is further expressed in the Forest Service land ethic: “Promote the sustainability of ecosystems by ensuring their health, diversity, and productivity,” which is coupled with the service ethic: “Work collaboratively and use appropriate scientific information in caring for the land and serving people.”

These land and service ethics are applied by the Forest Service through ecosystem management. Ecosystem management is the integration of ecological, economic, and social factors in order to maintain and enhance the quality of the environment to meet current and future needs.

The three strategic goals of the Forest Service are to: (1) ensure sustainable ecosystems, (2) provide multiple benefits for people within the capabilities of ecosystems, and (3) ensure organizational effectiveness.

In March 1998, the Forest Service Chief released the Forest Service Natural Resource Agenda. The agenda identifies four key areas of national focus. They are:

- Watershed health and restoration
- National sustainable forest ecosystem management
- Forest roads management
- Recreation enhancement

Implementation of the agenda will help bring people together and help them find ways to live within the limits of the land. This in turn will ensure that future generations will forever be endowed with the rich natural bounty of our Nation.

Principal Laws

The Forest Service administers the lands and resources of the National Forest System (NFS) under the Organic Administration Act of 1897, the Multiple Use-Sustained Yield Act of 1960, and the National Forest Management Act of 1976.

The agency also conducts research, provides assistance to State and private landowners, assesses the Nation’s natural resources, and provides international assistance and scientific exchanges. These activities are carried out under the Forest and Rangeland Renewable Resources Planning Act of 1974, the Renewable Resources Extension Act of 1978, the Forest and Rangeland Renewable Resources Research Act

of 1978, the Cooperative Forestry Assistance Act of 1978, and the International Forestry Cooperation Act of 1990.

Organizational Structure

The Chief, the top administrative official of the Forest Service, reports to the Secretary of Agriculture through the Under Secretary for Natural Resources and Environment. The Forest Service typically is viewed as consisting of three major components: (1) the National Forest System (NFS), (2) State and Private Forestry (S&PF), and (3) Research and Development (R&D). However, the agency supports many other programs, such as International Programs and Job Corps Civilian Conservation Centers. The NFS is organized into a Deputy Area within the Washington Office, 9 regional offices, 155 national forests managed by 115 supervisors' offices, and approximately 570 ranger districts and national grasslands.

The Forest Service manages the 191.6-million-acre NFS and supports multiple use and sustained yield of renewable resources such as water, livestock forage, wildlife and fish, wood, and recreation; and integration of mineral resource programs and visual quality. The agency also mitigates, when appropriate and in a scientific manner, wildfires, epidemics of disease and insects, erosion, floods, water quality degradation, and air pollution.

The NFS provides many recreational activities for the public. In 1997, it hosted more than 800 million recreation experiences—43 percent of the outdoor recreation use on public lands—including 60 percent of the Nation's skiing and significant percentages of hiking, camping, hunting, fishing, and driving for pleasure. NFS manages 4,385 miles of the Wild and Scenic Rivers System; 412 units of the National Wilderness Preservation System, 133,000 miles of trails; more than 250,000 heritage sites; and over 18,000 campgrounds, picnic areas, and visitor facilities.

The National Forests and Grasslands contribute \$134 billion to the gross domestic product.

The Forest Service administers many S&PF programs to provide technical and financial conservation assistance to State and private nonindustrial forest land. These programs serve as a link among many public and private organizations, and they help to promote the best use and conservation of America's natural resources on private lands. Wildland fire protection on private and public lands, Smokey Bear, forest health protection, and natural resource education are examples of S&PF programs. S&PF is organized into a Deputy Area within the Washington Office; it has an office in Radnor, PA, to work with States and landowners in the Northeastern United States, and has programs delivered from most NFS offices.

The R&D program is organized into a Deputy Area within the Washington Office, including four program staffs and six geographically dispersed research stations. R&D also includes the Forest Product Laboratory in Madison, WI. R&D conducts and sponsors basic and applied research that generates credible, relevant knowledge and new technologies that are used to sustain the health, productivity, and diversity of the Nation's forests and rangelands to meet the needs of present and future generations. The R&D effort is focused on four broad themes: (1) improve management and protection of the vegetation on the Nation's forest and rangeland

ecosystems; (2) sustain ecological processes in the terrestrial, aquatic, and atmospheric components of forest and rangeland ecosystems and enhance the biological diversity of the water, wildlife, and fish resources; (3) assess the extent, health, productivity, and sustainability of forest and rangeland ecosystems; and (4) assess the condition, trends, and capabilities of forest and rangeland resources and provide conservation technologies that improve their use and reuse.

International Program activities supported by the Forest Service, including programs at the International Institute of Tropical Forestry in Puerto Rico, promote sustainable development and global environmental stability. The director of International Programs reports directly to the Chief.

The Office of Communication, Civil Rights Program, Reinvention Program, and Law Enforcement and Investigations Program also report directly to the Chief.

The Forest Service has received tentative approval from the Secretary to reorganize the Operations area of the Washington Office into three areas: Financial Management, Business Operations, and Programs and Legislation. The Financial Management area is led by the Chief Financial Officer to ensure proper allocation of funds, tracking, control, and reporting of expenditure of funds. The Business Operations Deputy Chief manages the human resource, information resource management, and procurement programs. The Programs and Legislation Deputy Chief manages the development of the agency's budget and coordinates legislative affairs.

As part of the Business Operations area and through agreement with the Department of Labor, the Forest Service operates 18 Job Corps Civilian Conservation Centers on Forest Service lands. This is the only Federal residential education/training program for the Nation's disadvantaged youth. Over 9,300 students enroll in Forest Service centers each year.

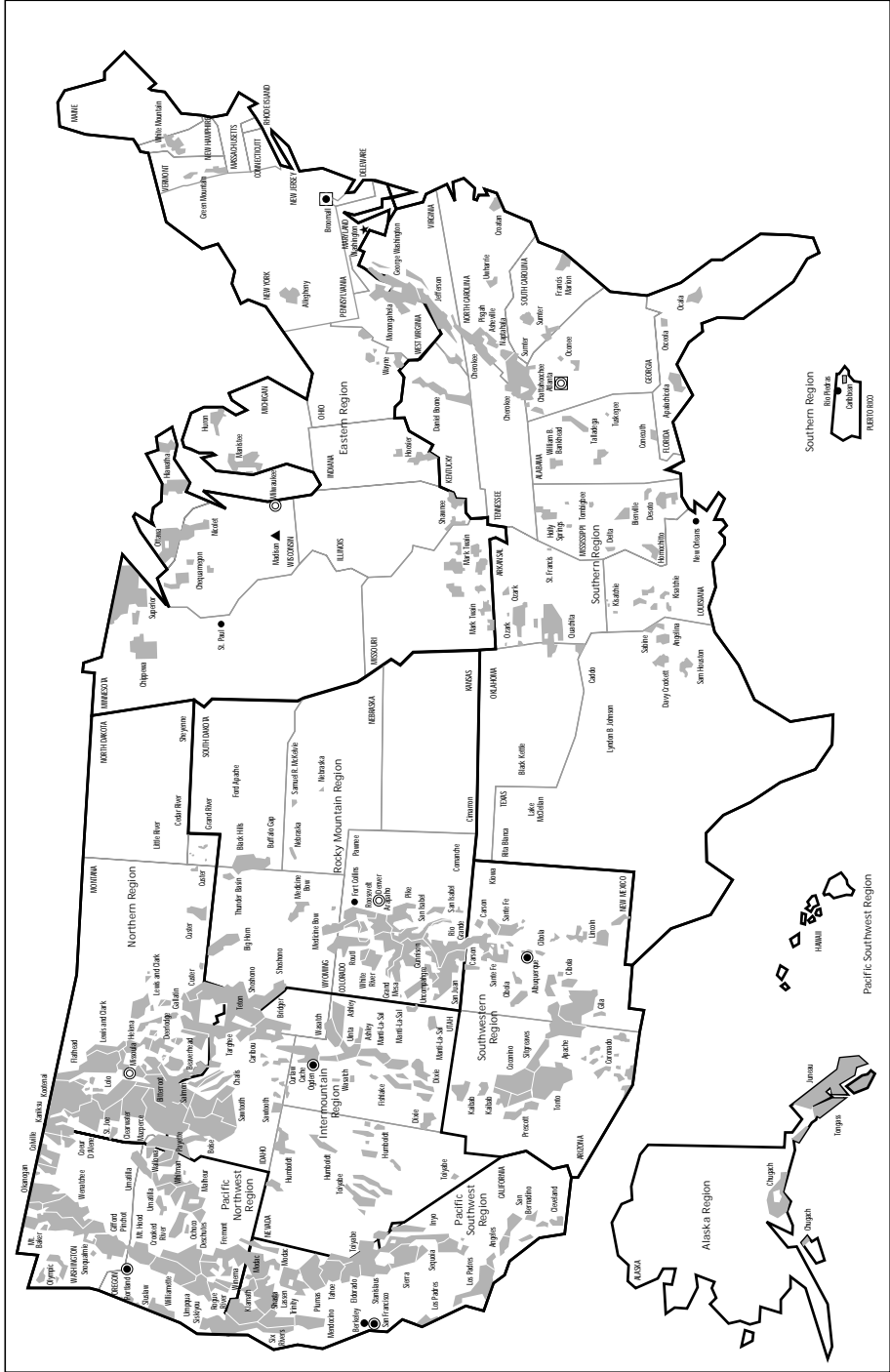
Reinvention

Creating a Forest Service that works better and costs less—that's what Forest Service reinvention is all about. As one of 30 Federal agencies designated by the National Partnership for Reinventing Government as a "High Impact Agency," it is dedicated to delivering first-rate customer service, cutting red tape to do its job more efficiently, and working with its partners—both in and out of government—to do the best job of caring for the land. Some recent highlights:

- With the Bureau of Land Management, the Forest Service is creating one-stop natural resource centers to better serve mutual customers, and sharing personnel and resources to enable both agencies to do their jobs better. In just two locations, this partnership is delivering better service and better resource stewardship while saving more than \$1 million a year. In 1999, this effort will expand agency-wide.
- In the Pacific Southwest Region and Research Station, the Forest Service began an experiment to let employees create internal enterprise teams that will allow them to bring their entrepreneurial spirit and creativity to bear on all facets of their work. Over time, this will help us import the best practices of the business world and the efficiency of the free market place to raise the level of performance of the Forest Service in achieving its public sector mission.

Figure 10-1.

Location of National Forests



- In partnership with six other Federal agencies, the Forest Service unveiled an Internet program that makes it possible for anyone with access to a computer to learn about outdoor recreation opportunities on all Federal public lands.

This new one-stop source lets customers discover for themselves the tremendous recreation options in “America’s Great Outdoors” and to plan their vacations on-line. Try it out at www.recreation.gov and see for yourself what reinvention at the Forest Service can do for you.

National Forest System—Conservation and Multiple Use

Lands

Lands-related activities include exchanging lands to protect and enhance the National Forest System, preventing encumbrances, protecting boundaries and records, granting appropriate rights to others, and administering rights granted to or retained by other agencies, governments, and landowners.

Wildlife, Fish, and Rare Plants

In 1996, wildlife and fish recreation expenditures tied to national forests tallied \$6.8 billion in association with 125.7 million visitor days of hunting, fishing, and wildlife/fish-associated viewing. Anglers spent \$2.7 billion (46.8 million visitor days), wildlife/fish viewers spent \$2.1 billion (52 million activity days), and hunters spent \$2.0 billion (27 million activity days) in pursuit of their pastimes. This \$6.8 billion in direct spending translates to a total of \$20 billion in local economic output and 226,000 jobs. Specific examples include:

- Commercial salmon harvested from the Tongass National Forest averages 120 million pounds per year, with an average annual earnings of \$66 million. Meanwhile, sportfishing numbers in Southeast Alaska increased by 62 percent from 1984 to 1993, a significant revenue source for local economies.
- In 1997, nearly 183,000 people joined in “Celebrating Wildflower” events on national forests.
- The Forest Service and its partners held 3,985 aquatic education events in 1997 that landed 274,000 people. Events included National Fishing Week, Pathways to Fishing clinics, and classroom talks.

Key Facts About the Forest Service

- The entire Nation has about 1.6 billion acres of forest and rangeland, under all ownerships.
- The entire Nation has 736.7 million acres of forest land area, not including rangeland, under all ownerships; the owners/managers of this forest land are as follows:
 - Federal Government: 249.1 million acres
 - Forest Service: 139.9 million acres
 - Bureau of Land Management: 36.6 million acres
 - National Park Service, Department of Defense, Department of Energy, & other Federal: 72.6 million acres
 - Non-Federal total: 487.5 million acres
 - State: 54.7 million acres
 - 9.9 million private landowners: 422.3 million acres
 - County and municipal: 10.5 million acres
- There are 191.8 million acres of national forest system land. This is 8.3 percent of the United States' land area, or about the size of Texas. The Forest Service manages:
 - National Grasslands: 3.9 million acres
 - National Primitive Areas: 173,762 acres
 - National Scenic-Research Areas: 6,630 acres
 - National Wild & Scenic Rivers: 4,385 miles—95 rivers
 - National Recreation Areas: 2.7 million acres
 - National Game Refuges and Wildlife Preserves: 1.2 million acres
 - National Monument Areas: 3.3 million acres
 - National Historic Areas: 6,540 acres
 - Congressionally Designated Wilderness: 34.7 million acres
- There are 88 wilderness areas designated Class 1 for air quality protection totaling 15 million acres.
- The value of the water from national forest lands is over \$3 billion per year.
- Approximately 14 percent of the Nation's water supply (about 280 acre-feet annually) comes from national forest lands.
- The Forest Service manages 155 national forests for multiple uses.
 - Miles of property boundary line: 249,000
 - Number of property corners: approximately 1 million
- The national forest trail system is the largest in the Nation, with 133,000 miles of trails for hiking, riding, cross-country skiing, snowmobiling, bicycling, and snowshoeing.
- The Forest Service provides more recreation than any other Federal agency. Visitors to national forests are attracted by:
 - 5,800 campgrounds and picnic areas
 - 328 swimming developments
 - 1,222 boating sites
 - 250 winter sports sites, including 135 downhill ski areas
- If all these sites were fully occupied at the same time, they would accommodate 1.8 million people.
- Minerals found on Forest Service lands provide more than \$3.3 billion in private sector revenue.

Key Forest Service figures for 1996:

- *Recreation use: 341.2 million visitor days (1 visitor day equals 12 hours of recreation use)*
- *Lands burned by wildfire: 530,000 acres*
- *Insect and disease suppression: 1.7 million acres*
- *Watershed improvements: 38,497 acres*
- *Terrestrial acres restored or enhanced for wildlife: 638,663*
- *Aquatic acres restored or enhanced for fisheries: 13,194*
- *Stream miles restored or enhanced for fisheries: 2,740*
- *Reforestation: 322,000 acres*
- *Livestock grazing: 9.3 million animal head months*
- *Grazing allotments administered: 8,808*
- *Timber sold: 3.7 billion board feet, enough to build over 300,000 homes*
- *Timber harvested: 3.3 billion board feet*
- *Road system: 377,800 miles*

Key Facts About Wildlife, Fish, and Rare Plants

- *The National Forest System includes 2.3 million acres of fishable lakes, ponds, and reservoirs and more than 197,000 miles of perennial streams.*
- *National forests and grasslands support habitats for more than 3,000 species of birds, mammals, reptiles, amphibians, and fish, as well as some 10,000 plant species.*
- *The national forests and grasslands also provide:*
 - 80 percent of the elk, mountain goat, and bighorn sheep habitat in the lower 48 States,*
 - 28 million acres of wild turkey habitat,*
 - 5.4 million acres of wetland habitat,*
 - Habitat for 250 species of neotropical migratory birds, and*
 - More than 280 species of threatened or endangered plants, fish, or wildlife.*

Partnerships

In 1997, over \$13 million in Federal funds was matched by partners' contributions, for a total of \$37 million to accomplish partnership projects on wildlife; fish; and threatened, endangered, and sensitive species on the national forests and grasslands. Specific partnership examples include:

- Quail will have terrific feasting grounds as a result of a partner project designed to benefit bobwhite. Legumes flourish on the freshly mowed, disced, fertilized, and seeded 35-acre opening within the Tombigbee National Forest, Mississippi. Other seed-eating birds will find both food and cover plentiful too.

- Skilled birders identified hundreds of species of birds by their calls to compile a breeding bird census in specified habitats on the Chequamegon-Nicolet National Forest, Wisconsin. Now, forest management decisions can better include the needs of birds.
- High school students are making a difference in the recovery of the endangered slender-petalled mustard. Their hard work counting and measuring plants on the San Bernardino National Forest, California, contributed to a 7-year monitoring effort that identifies precipitation as a primary factor influencing population size. As a result, managers understand that maintaining good habitat and seedbank resources is key to recovery of this species.
- The lake sturgeon is a large, primitive fish that was once abundant in the Great Lakes. Today it is a sensitive species on the Superior National Forest, Minnesota. Netting and electrofishing surveys conducted in the Sturgeon River drainage in 1997 yielded only one fish. Managers are hopeful that the removal of a logjam that blocks migration of sturgeon into available habitat will increase the number of sturgeon utilizing the river.
- A riparian tree-planting project along Sand Fork on the Wayne National Forest, Ohio, gave Federal prison inmates a chance to improve the lives of fish and wildlife. Along with Boy Scout Troop 115, they planted seedlings to stabilize stream banks and channels.

Water, Soil, and Air

Water flowing from the national forests is among the coolest and cleanest in the country. About 14 percent of the surface water supply in the United States flows from National Forest System (NFS) watersheds. The goals of the Forest Service's watershed, soil, and air management programs are to (1) manage watersheds to maintain or improve watershed conditions to sustain forestland and rangeland health for multiple uses; (2) sustain soil productivity, (3) protect 88 Class I wilderness areas from air pollution, and (4) evaluate Forest Service activities and their effect of air quality and watershed and soil condition.

The task of mapping all soils within NFS, with the cooperation of USDA's Natural Resources Conservation Service, is about 50 percent complete. In FY 1998, the Forest Service completed 3,888,497 acres of land to improve water and soil resources. Other significant ongoing activities include watershed inventory and analyses to better understand the capability of the watershed to sustain forestland and rangeland health; participating in water right adjudications; restoring desired watershed conditions on abandoned mines located on national forests; monitoring to determine air pollution impacts on visibility, water, and soil chemistry in wilderness areas; and collaborating on watershed health studies.

Rangeland

NFS rangeland is managed to conserve the land and its vegetation while providing food for both livestock and wildlife. Under multiple-use concepts, grazing areas also serve as watersheds, wildlife habitat, and recreation sites. Grazing privileges are

Key Facts About Water, Soil, and Air

- *There are approximately 3,200 watersheds on NFS lands which produce an average 280 million acre-feet of water annually.*
- *There are 3,336 municipalities, serving 60 million people, which get their tap water from NFS lands.*
- *173 trillion gallons of water is supplied by NFS municipal watersheds annually.*
- *About 600 remote weather data collection platforms are used in agricultural, fire, weather, and streamflow forecasting.*

granted on national forests and grasslands through paid permits; permittees cooperate with the Forest Service in range improvement projects.

NEPA decisions were made on allotments across the country in accordance with the Rescissions Act of 1995 (Public Law 104-19). The first 3-year time block in the 15-year Rescissions Act schedule, 1996 through 1999, ended with approximately one-third of all the livestock grazing allotments that needed environmental analyses being analyzed on schedule. Implementation of improved management was undertaken on these allotments. Monitoring both implementation and effectiveness of the management actions has been undertaken and will continue into the future.

The noxious weed management program was a success in FY 1998 with more acres treated than in previous years. This was accomplished by the Forest Service in cooperation with the States, counties, and cities working together to prevent the spread of noxious weeds, treat existing infestations, and educate citizens about noxious weed problems.

Key Facts About Rangeland¹

- *In FY 1998, the Forest Service administered 8,783 grazing allotments.*
- *Permitted livestock grazing totaled to 9.3 million animal head months. (A head month is 1 month's occupancy by an adult animal.)*
- *By the end of 1998, 2,007 allotments underwent environmental analyses in the first Rescissions Act 3-year time block. Management decisions were made on them which is resulting in improved rangeland vegetation.*
- *In FY 1998, 117,812 acres of rangelands were treated to control noxious weeds infestations.*
- *Forage improvement took place on 36,808 acres of rangelands.*
- *In FY 1998, 1,752 structural improvements were constructed on NFS rangelands to implement management changes prescribed in recent decisions.*

¹Rangeland improvements were accomplished with appropriated dollars, Range Betterment Funds, Trust Funds, Challenge Cost agreements, permit holder cooperation, and other private cooperation.

Energy, Minerals, and Geology

Energy and mineral development fosters economic development, as does the application of geologic principles on National Forest System lands, including development of private minerals underlying these lands. Ecosystems are protected by requiring appropriate design, mitigation, and reclamation measures, and by monitoring and inspecting operations to ensure compliance. Reclaiming abandoned mines on Forest Service land restores deteriorated ecosystems, and the Forest Service has reclaimed 38,000 abandoned mines.

Exploration, development, and production of energy and minerals from National Forest System lands contribute to economic growth, provide employment in rural communities, and raise revenues that are shared with the States. The energy and minerals component of the program is directed at obtaining these benefits while ensuring operations are conducted in an environmentally sound manner. In terms of the magnitude of the energy and minerals program, there are approximately 5.4 million acres leased for oil and gas, over 150,000 mining claims, about 7,000 mineral material pits and quarries, over 2,000 new operations proposed each year, and more than 20,000 operations to monitor and inspect. The largest coal mine in the United States is on NFS lands, and much of the Nation's phosphate and lead production comes from NFS lands. The value of all energy and mineral production exceeds \$2 billion per year. Annual revenues are about \$150 million, 25-50 percent of which is returned to the States where production occurs.

The geology and paleontology components of the program provide basic scientific information about the Earth's materials and processes. Forest Service geologists and paleontologists identify and interpret geologic and paleontological conditions and hazards for land management decisionmaking and cost-effective project design; inventory and evaluate sites with geologic and paleontological resources such as groundwater, fossils, and caves for appropriate management; and interpret sites having significance for scientific, educational, or recreational use. The interpretation is the legacy of all people, and the Forest Service recognizes its responsibility to manage that part of the fossil record occurring on NFS lands as a public legacy for future generations. Fossils are nonrenewable resources and their value may be greatly diminished or lost entirely in the absence of proper management.

The USDA Forest Service recognizes multiple-use values for fossil resources that include: legacy value for present and future generations, scientific value, educational and interpretive values, and recreational and aesthetic values.

Forest Vegetation Management

Approximately 73 percent of the 192 million acres of national forests is considered forested. Of the forested land, 29 percent is identified as suited for timber production and less than 1 percent is subject to some form of timber harvest treatment in any given year. Of the remaining 71 percent identified as not suited for timber production, some is protected from harvest but otherwise, salvage or harvest necessitated to make other multiple-use values may occur.

In most cases, forested ecosystems on the national forests are in a healthy, functioning condition due to past active management and environmental protection measures. These forests provide highly diverse and often unique resources, opportunities,

Key Facts About Forest Service Energy, Minerals, and Geology Program

- 7 million acres where there is a possibility for coal leasing (95 billion tons)
- 45 million acres where there is a possibility for oil and gas leasing; 5.4 million acres leased
- About 7,000 sand, gravel, and stone pits and quarries
- Approximately 2,000 new operations requiring review each year
- Over 20,000 existing operations requiring monitoring
- 55 percent of the Nation's production of lead
- One of the world's largest molybdenum deposits (Tongass National Forest, AK).
- Many of the Nation's 100,000 rock hounds, recreational mineral collectors, students, and geologic organizations use the national forests for education and recreational purposes.
- Noncommercial panning for gold is an activity that is rapidly increasing.
- The Forest Service manages fossil and geologic sites of interest as resources for present and future generations, scientific, education, interpretive, recreational, and aesthetic values.
- The most complete Champsosaurus skeleton in the world (55 million years old) came off national grasslands and is on display at FS headquarters.
- FS has partnerships with communities, States, and universities on managing the paleontological resource.

The following resources are produced annually on NFS lands:

- 10 million barrels of oil
- 250 billion cubic feet of gas
- 115 million tons of coal
- 500 million pounds of lead
- 200 million pounds of copper
- 11 million ounces of gold
- 20 million tons of sand and gravel

and experiences for the public. In some cases, ecosystems are not functioning in a way that can be sustained without unacceptable risk of losses to wildfire, insects, or diseases. It is important that the agency assess each ecological situation at the local level, establish management objectives based on ecological, social, and economic information, and utilize the best tools available to achieve established vegetation objectives.

The removal of woody biomass through the Forest Service's timber sale program is an essential component of national forest management. Restoration and maintenance of healthy forests is the best way to sustain the production of goods

and services and protect the environment. Timber sales represent one tool that can be used to achieve forestland restoration and maintenance goals. Furthermore, since timber sales generate some financial return, they may be the least net cost means of implementing desired vegetation management treatments.

The Forest Service is strongly committed to managing NFS lands in an ecologically sensitive manner. One of the agency's top priorities is to maintain and improve the health and vigor of forest ecosystems for the enjoyment of current and future generations. The Forest Service operates Federal timber sales under some of the most substantial and effective environmental protection policies in the world. The agency is taking an active role in managing vegetation to help achieve the complex interrelated objectives of resource use and environmental protection.

Stewardship Demonstration Projects

Experience has shown that the agency's traditional tools for managing vegetation—i.e., the standard timber sale and service contracts—are oftentimes not well suited to addressing many of today's most pressing vegetative management needs, or to implementing truly integrated resource management projects. The standard timber sale contract was designed to dispose of commercially valuable timber, but many of today's most important treatment needs—e.g., reducing excessive fuel loadings—often involve managing wood of little or no commercial value. The standard service contract can be a flexible and powerful tool, but funding frequently limits the amount of work that can be accomplished in this manner.

Recognizing the problems associated with its traditional vegetative management tools, in Section 347 of the Fiscal Year 1999 Department of the Interior and Related Agencies Appropriation Act (Public Law 105-277), Congress gave the Forest Service the authority to test an array of new processes and procedures through a series of 28 stewardship contracting end-results demonstration projects. Under the terms of this legislation, the projects that are undertaken are to address one or more of the following resource management objectives: road and trail maintenance or obliteration to restore or maintain water quality; soil productivity, habitat for wildlife and fisheries, or other resource values; prescribed fires to improve the composition, structure, condition, and health of stands or improve wildlife habitat; noncommercial cutting or removing of trees or other activities to promote healthy forest stands, reduce fire hazards, or achieve other noncommercial objectives; watershed restoration and maintenance; restoration and maintenance of wildlife and fish habitat; and control of noxious weeds and reestablishing native plant species.

The new processes and procedures the agency may test include the following: award of contracts on the basis of best value, service contracts of up to 10 years' duration, exchange of goods for services, retention of receipts, offer of sales valued at over \$10,000 without advertisement, designation of timber to be cut by description, and use of State foresters as Federal agents in helping to prepare and administer national forest timber sales.

Key Facts About the Forest Vegetation Management Program

Accomplishments:

- 3.42 BBF (billion board feet) of timber offered for sale in FY 1998.
- 2.96 BBF of timber sold and awarded in FY 1998.
- 3.30 BBF of timber harvested in FY 1998.
- 51 percent for timber commodity purposes.
- 43 percent for forest stewardship purposes.
- 6 percent for personal use purposes.
- 525,755 acres subject to some type of harvesting operation in FY 1998.
- 292,902 acres naturally or artificially regenerated in FY 1998
- 300,202 acres of timber stand improvement treatments in FY 1998.
- 27 MMBF (million board feet) of free use firewood provided in FY 1997.
- 249,714 Christmas trees sold in FY 1997.
- \$3.0 in special forest products sold in FY 1998.
- 221,200 families assisted through personal use sales in FY 1997.
- 2,322 miles of existing forest roads reconstructed in FY 1998.
- 200 miles of new forest roads built in FY 1998.

Economic Impacts:

- 55,535 local community jobs in FY 1997.
- \$2.0 billion in regional income in FY 1997.
- \$309 million in Federal income tax receipts in FY 1997.
- \$220 million in receipt-share payments returned to States and counties in FY 1997.
- \$345 million is estimated Net Present Value of long-term benefits and costs of program in FY 1997.

Contributions to Other Resource Programs:

- 208,400 acres of wildlife habitat restored/enhanced in FY 1998.
- 17,955 wildlife habitat improvement structures built in FY 1998.
- 344 miles of fish habitat restored/enhanced in FY 1998.
- 8,600 acres of range forage improvements in FY 1998.
- 169 forage improvement structures built in FY 1998.
- 18,200 acres of soil and water resource improvements in FY 1998.
- 15,500 acres of fuels management in FY 1998.

Passport in Time

Through the Passport in Time program, the Forest Service offers unique, nontraditional recreation opportunities such as archaeological excavation, historic structure restoration, and wilderness surveys. These experiences foster environmental stewardship while providing the public with unusual, educational experiences.

Passport in Time has over 13,000 volunteers contributing over \$5.2 million worth of time and effort to preserve our Nation's history by restoring historic structures, stabilizing National Register eligible sites, evaluating sites for inclusion in the National Register of Historic Places, working on projects in wilderness, and developing heritage interpretive sites. Every activity is aimed at making our Nation's unique history accessible to the public and preserving it for future generations.

State and Private Forestry—Providing Assistance to Nonindustrial Private Landowners

The State and Private Forestry programs represent important tools for the monitoring, management, protection, and better use of America's forests, with emphasis on non-Federal forest land stewardship. These programs connect forestry to all land managers—whether small, urban woodlot owners, tribal foresters, State agencies, or Federal—in efficient, nonregulatory ways. Through a coordinated effort in management, protection, and better use, the programs of State and Private Forestry help facilitate sound forestry across ownerships on a landscape scale.

About 70 percent of America's forests are in State and private ownership, and 80 percent of the wood fiber potential comes from these lands. These lands are also critical to watershed conditions, fish and wildlife habitat, and the aesthetic quality of the Nation's landscape; and they represent one of the best sources of carbon sequestration. Since these non-Federal forests represent most of the forests in our country, keeping these lands healthy, productive, and sustainable in the rural and urban areas on a cumulative basis is especially important to the Nation. With increasing fragmentation and development pressure, the unique Federal role in maintaining the value and functions of these lands across ownership divisions has never been greater or more important.

Through a partnership role of technical advice and focused financial assistance, the program leverages Federal resources to help produce a variety of forest-based goods and services—including recreation, wildlife and fish, biological diversity, and timber—to help meet domestic and international needs.

Forest Health Protection

The Forest Service provides technical and financial assistance to Federal agencies, tribal governments, States, and (through State foresters) to private landowners. In 1997, with the assistance of State foresters and others, the Forest Service conducted insect and disease detection surveys on 203 million acres of NFS, other Federal land, and tribal lands, and 552 million acres of State and private lands. In addition, the Forest Service and State foresters participate in a forest health monitoring program. With USDA's Animal and Plant Health Inspection Service, the Forest Service works to protect the Nation's forests from exotic insects, diseases, and plants. The Forest Service provides technical assistance in the safe and effective use of pesti-

cides, shares the cost of insect and disease prevention and suppression projects with States, and funds prevention and suppression projects on Federal lands. The agency also evaluates and applies new, more efficient and environmentally sensitive technologies for forest health protection.

Cooperative Forestry—Providing Assistance to Nonindustrial Private Landowners and Community and Urban Areas

Cooperative Forestry (CF), in partnership with State forestry and other non-Federal forestry interests, provides for multidirectional links between Federal forestry programs and objectives and the non-Federal forestry sector. CF connects ideas and people to resources and one another so they can better care for forests to sustain their communities. Since the 1990 Farm Bill, all programs have strategic plans in place to guide nationwide delivery. CF has three major goals:

- Ensure sustainable ecosystems
- Provide multiple benefits for people within the capabilities of ecosystems
- Ensure organizational effectiveness

The Forest Stewardship Program provides technical assistance to nonindustrial private forest landowners interested in managing their forests for multiple resources. More than two-thirds of the Nation's forests are non-Federal, owned by 9.9 million nonindustrial private forest land owners. Since 1990, over 133,400 landowners have enrolled in the program, and stewardship plans have been prepared on more than 16.6 million acres of nonindustrial private forests.

The Stewardship Incentives Program provides cost share assistance to landowners implementing Forest Stewardship Landowner Plans. This program is managed in cooperation with State forestry agencies and USDA's Farm Service Agency to provide assistance on more than 250,000 acres annually. This includes approximately 50,000 acres of tree planting annually. Since 1990, Stewardship Incentives Program practices have been implemented on 1.5 million acres, including approximately 200,000 acres of tree planting.

The Forest Legacy Program is designed to effectively protect and conserve environmentally important forest areas that are threatened by conversion to nonforest uses. These lands can be protected through conservation easements and other mechanisms. This program is based on the concept of "willing seller and willing buyer" and is completely nonregulatory in its approach. No eminent domain authority or adverse condemnation is authorized. To date, 15 States have completed an Assessment of Need, which is the formal document that allows for entry into the Forest Legacy Program. Program partners include The Trust for Public Lands, State governments, and local land trusts. Since 1993, almost 62,000 acres in eight States have been protected from development. These lands have a value of more than \$25 million and have been protected with about \$18 million of Federal funds. States with legacy lands include Connecticut, Maine, Maryland, New Hampshire, New Jersey, New York, Vermont, and Washington.

Urban and Community Forestry (U&CF) is a key part of the agency's interest in urban forest resources management; it helps people better manage the natural resources where 80 percent of America lives. Through the National Tree Trust

Foundation, the National Urban and Community Forestry Advisory Council, Urban Resources Partnerships, and State Forestry agencies, the U&CF program provides support for ongoing, critical developments in urban ecosystem management through improvements in urban forest policy, planning, assessment, tree planting, technical standards, education, budgets, and financial management. Education activities include support for the Treeture environmental education program through a partnership with the International Society of Arboriculture, the National Tree Trust, and American Forests. To assist with building local community forest management capabilities, technical and financial assistance is currently provided to more than 11,600 communities annually.

Grants made available through Federal funding from U&CF totaled more than \$9.9 million in 1997 to support a full range of program development activities from the national to the local level. Matching grants generate more than \$49.1 million in private donations of cash, goods, and services for all activities supporting tree planting, care, and protection, approximately a 5:1 ratio of private to Federal financing of urban and community forestry activities.

Economic Action Programs

A collection of long- and short-term programs together make up a strategic overall effort to help communities and businesses that depend on natural resources to pursue self-sufficiency and sustainability. Through Economic Action Programs, the Forest Service provides technical and financial assistance to more than 3,240 rural communities and businesses that are adversely affected by change in availability of natural resources or in natural resource policy. Of the total number assisted, more than 130 were tribal and minority communities.

Rural Community Assistance

The Forest Service implements the national strategy on rural development in coordination with USDA's Rural Development mission area and other State and Federal agencies. The goal is to strengthen rural communities by helping them diversify and expand their economies through the wise use of natural resources. In FY 1997, the Forest Service initiated an outcomes measurement process for rural community capacity building; over 150 communities have established indicators and measures to determine progress.

Economic Recovery is a long-term program that targets areas with acute economic problems associated with changes in Federal land management policies and natural resource decisions. The purpose of the effort is to assist eligible natural-dependent areas to diversify by developing new or different economic activities. In FY 1997, over 600 eligible communities received technical and financial assistance, training, and education to help them diversify their forest-based economies. Of these communities over 530 are taking action based on locally led strategic plans.

Rural Development is a long-term program that provides technical and financial assistance to help strengthen, diversify, and expand local economies, especially those experiencing long-term or persistent economic problems. Rural Development is a grant program that provides technical assistance and matching funds for locally initi-

ated and planned projects. They are designed to stimulate improvements in the economic, environmental, or social well-being of rural citizens through forest resources.

A short-term emphasis is the Pacific Northwest Assistance effort, which supports the diversification of local economies experiencing reductions in Federal timber harvest levels. This effort provides technical and financial assistance to over 900 communities. It is part of a larger, multi-agency effort to target resources to rural areas facing acute economic problems. Over 90 percent of these Forest Service funds are granted directly to the communities, counties, and tribes for community-identified projects to meet local needs. About 7.5 percent of the funds goes into agency technical assistance. In addition, for every dollar of Forest Service funding, over \$2 is leveraged from partners.

The Forest Products Conservation and Recycling Program continually provides a cadre of Federal forest products technology transfer specialists trained in logging, sawmilling, drying, processing, marketing, engineering, and wood technology. This assistance directly affects communities and businesses that foster conservation and ecosystem health through proper utilization of forest products. In FY 1997, over 1,100 technical assists were provided and over 90 workshop presentations made, leading directly and indirectly to over 100 jobs being created or retained. This work is supported by regional and State specialists as well as a Technology Marketing Unit at the Forest Products Laboratory in Madison, WI.

The Wood in Transportation Program improves rural transportation networks and demonstrates the commercial potential of using wood from undervalued tree species for bridges and other transportation structures in rural communities. This demonstration program has built market value for these species, which in turn stimulates economic return and value for protecting the forest and its ecosystems. In FY 1997, 14 structures were funded, leveraging over \$772,000, with nearly a 2:1 ratio of private to Forest Service funding. More than 57,000 pieces of technical information were requested and disseminated to local and State officials responsible for transportation infrastructure.

Natural Resource Conservation Education

The Forest Service supports a lifelong learning process that promotes the understanding of ecosystems and natural resources—their relationships, conservation, use, management, and values to society. Our large partnership base assists the Natural Resource Conservation Education (NRCE) program in about 200 projects across the country each year, reaching about 2.4 million young people and more than 118,700 teachers. More than 40 separate program efforts are coordinated. They include Project Learning Tree, which reaches 400,000 teachers. The Forest Service budget is leveraged through a variety of organizations and groups to reach a 3.8:1 ratio of private to agency funds.

Smokey Bear: Smokey Bear has been spreading the forest fire prevention message for 54 years. The Forest Service began a fire prevention program during World War II, and in 1944, a bear was introduced as the program symbol. Smokey is one of the most recognized symbols of fire prevention worldwide. Educational programs using Smokey Bear are delivered to people of all age groups and backgrounds. The

message is primarily oriented toward elementary school-age children. Almost every State has a Smokey suit that is used for a wide variety of fire prevention purposes, from school programs to parades. There is a Smokey Bear hot air balloon that is displayed at events across the Nation.

Woodsy Owl: Woodsy Owl is a colorful and fanciful character designed to be especially appealing to young children. Woodsy is recognized by over 83 percent of all American households and is America's leading symbol for environmental improvement. Woodsy's appearance and message have recently been redesigned and revitalized. He now sports a backpack, hiking shoes, and field pants. His new slogan builds on his previous message: "Lend a hand—care for the land!" The Woodsy Owl campaign was officially launched by the Forest Service on September 15, 1971. In June 1974, Congress enacted a law establishing "Woodsy Owl"—with his slogan, "Give a hoot! Don't pollute!"—as a "symbol for a public service campaign to promote wise use of the environment and programs that foster maintenance and improvement of environmental quality."

Wildland Fire Management

The Wildland Fire Management program protects life, property, and natural resources on the 191.6 million acres of NFS lands. An additional 20 million acres of adjacent State and private lands are also protected through fee or reciprocal protection agreements. Wildland fire activities are conducted with the highest regard for public and firefighter safety.

Preparedness provides the basic fire organization and the capability to prevent forest fires and take prompt, effective initial attack suppression action on wildfires.

In FY 1997, 1.1 million acres of NFS lands received Hazardous Fuel Treatment to reduce the amount of hazardous fuels (combustible carbon from trees, understory growth, etc.). This was a 120-percent increase over the 1987-1996 average of 0.5 million acres. Fuel treatment benefits the health of the forest and can reduce the danger of catastrophic wildfire.

Suppression Operations provide for the suppression of wildfires on or threatening NFS lands or other lands under fire protection agreement.

In 1997, over 7,800 fires burned approximately 129,000 acres of NFS and other protected lands. The annual average is approximately 11,500 fires burning on 634,000 acres.



Smokey Bear



Woodsy Owl

Cooperative Fire Protection

The Cooperative Fire Protection (CFP) program provides technical and financial assistance to State and volunteer fire departments to aid in the protection of over 1 billion acres of State and private lands.

The State Fire Assistance component of this program protects natural resources from fire on State and private lands. This is done through fire prevention efforts, training and equipping fire organizations, and aggressive initial attack to keep wildland fire ignitions small. Federal funds are cost-shared with State and local funds and help augment State protection needs. State and local fire organizations, capable of quickly and efficiently extinguishing wildland and wildland/urban interface fires, reduce risk to public safety, prevent resource loss, and help contain costs of fire suppression.

The Volunteer Fire Assistance component of the CFP improves the ability of America's 26,000 rural fire departments to protect lives, property, and natural resources in rural and wildland/urban interface areas. The focus of the Federal assistance is to provide adequate fire and personal safety equipment, provide training, and to organize new fire departments in unprotected communities.

Federal Excess Personnel Property is acquired by the Forest Service and loaned to State forestry agencies and their cooperators, rural fire departments, for wildland and rural community fire protection. In 1997, 11,271 excess property items valued at \$128,008,876 were acquired and placed in service in the United States. In the past 42 years, this program has saved taxpayers of the United States over \$1 billion.

Research and Development

Forests are critical to the global environment and the global economy. They are the source of food, raw material, shelter, and income for millions, and they provide sanctuary for people and habitat for wildlife. Forests filter and protect water supplies and absorb carbon dioxide from the atmosphere. Agency research and development activities are conducted in areas requiring urgent policy and management action, including studies related to watershed health and restoration, sustainable forest management, economic and social values, and forest health.

Since its establishment in 1976, Forest Service Research and Development has become the world's single largest source of natural resource information. It includes:

- About 550 scientists working on the productivity, health, and diversity of the temperate, boreal, and tropical forests;
- Six regional experiment stations and one national Forest Products Laboratory comprising 63 research lab locations, many collocated with universities;
- Eighty-three experimental forests and ranges and 370 research natural areas devoted to long-term research;
- An extensive portfolio of long-term research data bases, some more than 60 years old; and
- Gateways for collaborative research in the Tropics, through the International Institute of Tropical Forestry in Puerto Rico and the Institute of Pacific Islands Forestry in Hawaii.

The Forest Service Research and Development Program provides:

- Scientific information to natural resource managers, other scientists, and the public through more than 2,600 publications per year and many presentations at symposia and workshops,
- Collaboration with university, industry, and other scientists; nongovernmental organizations; managers; and policymakers for work that transcends the abilities of any single organization,
- More than \$17 million per year in domestic grants, cooperative agreements, and contracts for research partnerships, and
- Key data bases for enhancing forest health, productivity, and conservation, including an extensive portfolio of long-term research data bases with many more than 60 years old.

The Forest Service provides scientific and technological information to manage the Nation's forests and associated ecosystems. This includes studies in vegetation management, watersheds, fisheries, wildlife, forest products and recycling, insects and diseases, economics, forest and rangeland ecology, silviculture, fire ecology, fire prevention, ecosystem functioning, and recreation.

Priority research items include:

- Forest inventories, which were conducted on 47 million acres of forest lands across all ownerships in 1998, with status and trends reported in 90 inventory reports. In 1998 forest inventory and analysis is planned for 25 States and forest health monitoring in 32 States.
- Recycling and wood use, to solve technical problems that hinder wastepaper recycling and to develop new products from agricultural and wood fibers and byproducts.
- Research to support the sustainable management of forests, including evaluation of how climate interacts with pollution, drought, and forest health.
- Large-scale ecosystem studies that support the conservation and restoration of watersheds, for example protecting watersheds, riparian zones, and biological diversity in the Rio Grande Basin and the Upper Columbia River Basin.
- Research to provide habitat management information and guides for more than 70 threatened, endangered, and sensitive species, and to help define the impacts of forest fragmentation on wildlife.
- Research to support early eradication of non-native invasive insects, diseases, and weeds; for example, information on the biology of Asian longhorned beetles supports successful control of this introduced pest in New York, and newly developed DNA markers for viral control agents provide more efficient and cost-effective control of Asian gypsy moth.

Business Operations—Acquisition Management

The agency spent nearly \$900 million in over 728,000 actions for goods and services in FY 1998. Over 69 percent of the total procurement dollars were awarded to small businesses. Awards included more than \$52 million to small disadvantaged businesses and \$32 million to women-owned small business firms. Forest Service dollars benefited States, research, international organizations, and other organizations

through a variety of grants and cooperative agreements totaling more than \$414 million. This expenditure is not included in the figures cited above. The agency managed approximately 22 million square feet of owned office and related space plus 6 million square feet of agency leased and General Services Administration- controlled space with an annual rental of \$62 million. The Forest Service also manages approximately 4,000 units of living quarters for employees valued at \$375 million. Property managers oversee more than \$2.7 billion worth of Forest Service personal property, including property on loan to State forestry departments. The agency supports the President's initiative on recycling with emphasis on both procurement of and efficient disposal of recyclable materials. The agency national strategy for waste prevention and recycling is available via the Internet's World Wide Web at: <http://www.fs.fed.us/land/recycle.html>.

Senior, Youth, and Volunteer Programs

Senior, Youth, and Volunteer Programs provide job opportunities, training, and education for the unemployed, underemployed, elderly, young, and others with special needs, while benefiting high-priority conservation work. In FY 1998, these programs included more than 125,600 participants and accomplished over \$109 million in conservation work on Forest Service lands.

Through an agreement with the U.S. Department of Labor, the Forest Service operates 18 Job Corps Civilian Conservation Centers on Forest Service lands. The Job Corps program is the only Federal residential education/training program for the Nation's disadvantaged youth.

Key Facts About Job Corps Civilian Conservation Centers:

- 18 Job Corps Centers, 17 co-ed
- 9,373 enrolled, ages 16-24
- \$98.6 million budget
- 17.2 million work accomplishment
- 82 percent placed
- Average starting salary, approximately \$7.00 per hour
- 45 percent minorities

The **Senior Community Service Employment Program** is designed to provide useful part-time employment and training for persons age 55 and over.

Key Facts About the Senior Community Service Employment Program:

- 5,484 older workers participated
- \$28.4 million budget
- \$40.7 million work accomplishment
- Only Federal agency among 10 national sponsors
- 44 percent females
- 24 percent placed in unsubsidized employment
- \$1.43 return on dollar invested

In the **Youth Conservation Corps** summer employment program, persons age 15-18 accomplish projects that further the development and conservation of the United States' natural resources.

Key Facts About the Youth Conservation Corps:

- 594 enrollees, ages 15-18
- \$1.8 million operating costs
- \$1.6 million work accomplishment
- \$.88 return on dollar invested
- 43 percent females

The **Volunteers in the National Forests** program allows organizations and individuals to donate their talents and services to help manage the Nation's natural resources.

Key Facts About Volunteers in the National Forests:

- 98,271 volunteers have participated (including 105 international volunteers and 265 Touch America Project volunteers, ages 14-17)
- \$38.3 million work accomplishment
- 33 percent females
- Over 1.3 million volunteers served since the 1972 legislation

Hosted programs provide conservation training and work opportunities on national forests or in conjunction with Federal programs. Programs are administered through agreements with State and county agencies, colleges, universities, Indian tribes, and private and nonprofit organizations.

Key Facts About Hosted Programs:

- 11,976 participants
- \$11.3 million work accomplishment
- 30 percent females
- 24 percent minorities

Office of International Programs

The Forest Service promotes technical cooperation and develops support for sustainable forest management practices worldwide. In addition, many individual research relationships exist between Forest Service researchers and managers and their counterparts around the world.

The Office of International Programs (IP) is divided into three program areas: technical cooperation, policy, and disaster assistance support. Partners include other U.S. Government agencies, as well as international organizations such as the International Tropical Timber Organization and the Food and Agriculture Organization of the United Nations. In addition, IP has developed numerous country-specific partnerships that promote training and technical exchange and tap into the diversity of experience within the Forest Service.

IP is involved with a wide variety of activities. Some examples from 1997 include: organizing a workshop on nontimber forest products in Central Africa; facilitating research to combat invasive pests in the United States; and coordinating Forest Service technical participation in response to drought, flood, and fire disasters in Africa, Asia, and Latin America.

In addition, long-term partnerships include working with the Partners in Flight program to support neotropical migratory bird habitat restoration in Mexico, working with the Federal Forest Service of Russia to advance the ability of their fire ecologists and managers to more effectively use fire as a management tool, and working with the Indonesians to develop mapping technology for land management.

In the policy area, IP is working to develop criteria and indicators for international and forest level monitoring. Further policy work includes issue briefs that explore current issues affecting international and domestic forestry. Other efforts include providing Incident Command System training to foreign firefighters so that they are prepared to deal with wildfires when they arise, and promoting reduced impact harvesting techniques through a network of forestry research organizations.

Since October 1997, over 100 Forest Service employees representing each of the 10 regions as well as research stations have been involved in international forestry work. They have participated in international forestry meetings, conducted assessments of disaster situations, coordinated interagency response teams, and conducted original research. The partnerships that have developed and that are being encouraged enable a great exchange of ideas and techniques, which lead to more sustainable forestry practices, in this country and abroad.

Law Enforcement and Investigations

The objective of the Forest Service law enforcement program is to provide for public and employee safety, and to protect natural resources and property within the authority and jurisdiction of the Forest Service. The program focuses on activities such as vandalism, archaeological resource violations, timber theft, wildland arson, and the cultivation and manufacture of illegal drugs.

Forest Service drug control efforts continue to focus on the detection, apprehension, and prosecution of persons responsible for illegal drug activities on the forests. Drug enforcement efforts annually result in the seizure of several million dollars'

Key Facts About the Impact of International Programs:

- *Through involvement with industry, State foresters, and major non-governmental organizations, 12 countries forged a consensus on a set of criteria and indicators for assessing progress towards sustainable forest management.*
- *International collaboration on research and monitoring help to reduce the impact of invasive pests such as the Asian gypsy moth and hemlock woolly adelgid, which have severe impacts on timber resources.*
- *Partnerships with organizations such as Ducks Unlimited to restore waterfowl habitat will increase the populations of waterfowl that migrate to the Western and Southwestern United States from Mexico and further south.*
- *A program with the Federal Forest Service of Russia, the State of Alaska, and U.S. companies and nongovernmental organizations will help to ensure that Russians have access to the best environmental technology as petroleum resources on Sakhalin Island are developed. This will promote increased employment in Alaska and preserve salmon fisheries around Sakhalin Island and Alaska.*

worth of assets and the seizure and destruction of nearly \$1 billion worth of marijuana and other drugs.

In FY 1998, 520 cooperative law enforcement agreements enhanced cooperation with State and local law enforcement agencies and with other Federal agencies to increase the protection and service to forest visitors. About 160 drug enforcement agreements were set up between the Forest Service, State and local law enforcement agencies, and other Federal agencies or task forces to cooperate in eliminating illegal drug activities in the National Forest System.

Key Facts About Law Enforcement and Investigations:

- *Nearly 290,000 incidents or criminal violations were reported and handled by Forest Service (FS) officers in FY 1998. These violations resulted in many millions of dollars in damages and losses to FS property and natural resources.*
- *Nearly 338,000 marijuana plants valued at over \$1.0 billion were eradicated from approximately 3,900 sites. Officers and agents made over 2,800 arrests for drug-related offenses, seized nearly \$12 million in processed marijuana, and seized over \$4.8 million dollars in assets. There were 14 incidents of assault, 23 incidents of intimidation, and 174 firearms seized in relation to drug activities.*
- *About 460 uniformed officers and 135 criminal investigators performed investigation and enforcement activities unique to the FS, the resources, and its nearly 191 million acres.*